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Hyposciamia -

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CLINICAL STUDIES ON HYOSCIA- MIA.

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THE literature to be found on the action of *Hyosciama* and its alkaloid appears far more meagre than is the case with morphia, codeia, atropia, aconitia and cocaine, and for that reason our knowledge of its effects is unsatisfactory and limited.

The alkaloid *hyosciama* or *hyosciamine*, is the active principle of the henbane plant. As far as we can learn it is nearly identical in its physiological action with *atropia*, but that it is far more feeble than is that agent. The effects of the plant on the system are closely analogous with those of the deadly night shade (belladonna). They differ from opium in being less powerful as an anodyne, hypnotic and antispasmodic, and in its tendency to relax rather than to bind up the bowels. In large doses we are taught that " *hyosciamus* dilates the pupil, causes delirium, loss of vision, etc." It appears to be used in about the same affections and for about the same purposes as belladonna and stramonium, though we would expect less prompt results because of its lesser power. We often find its extract combined with the griping cathartics. Some physicians combine this extract with morphia, thinking thereby to augment the anodyne effect of that alkaloid, and lessen its dangers. With camphor it is often given to lessen the excitement about the pelvic organs. In cough we often obtain relief in adults, who have reasons for avoiding the opium preparations. Thus *hyosciamus* neither constipates, nor tightens the bronchial secretion, which gives it great preference over opium. A cheap cough mixture consists of wine of ipecac and tinct. of *hyosciamus* rubbed up

in mucilage of acacia. Though henbane is poisonous to the human family, its leaves are eaten with impunity by sheep and deer. From its resemblance to the common wild parsnip fatal mistakes have occurred from persons eating the plant. Dr. Eberle knew instances where even small doses of henbane caused great excitement in females, amounting to delirium. He claims to have known good follow its use in hemorrhage from the lungs. In large doses the plant causes " hallucination with delirium." It is reported that a number of Monks ate henbane for supper by mistake and were soon seized with dryness of the throat, with vertigo and disorders of the bowels, so that they could not go through with the service. The children of an apothecary were once drying some seeds of henbane by a fire, and as soon as the seeds became hot the children became intoxicated and fell to fighting. Their pugnacious impulses were soon subdued however by the vomiting and purging which follows on the effects of the fumes. Chickens and fish are poisoned by the seed, the plant having been so called from its fatal action on the former of these animals. Hogs, cows, rabbits, sheep and deer as before stated, eat it without danger, yet dogs and cats are susceptible to it just as is man. We cannot know if such as are not affected toxically by the plant experience dryness of the throat, but we do know that such as show its narcotic power at all lose control over their hind legs and that in such the pupil becomes dilated as if under the action of belladonna. In medium doses the respiration and circulation are both rendered slower, while the force of the pulse is really strengthened. These effects however are omitted if the doses given are very large and the contrary effect on both

these functions obtains. In the urine of such as have taken the drug for any length of time, its alkaloid may be detected. Belladonna and hyoscamus are so similar in their action on man that it is no wonder that the effects of the one are sometimes mistaken for the other, as in the case whose clinical history we will dwell on more at large further on. Hyoscamus is but a feeble anodyne and scarcely hypnotic unless in very free doses. Despite the assertion of Dr. Ringer and the common idea which has so long prevailed that the potassa salts neutralize its action, like that of most other vegetable anodynies, we are much in the habit of combining the tincture or fluid extract of henbane with either the citrate, the bicarbonate or the bromide of potassium and of sodium in bladder troubles with the view, and with the effect too, of neutralizing any acid excess in the urine.

In Germany henbane is much used in place of opium in diseases of children as being less likely to constipate or nauseate, as well as less dangerous in the hands of nurses and mothers. The drug is thought to some degree to excite the cerebral functions while it *sedates* or *moderates* those of the spinal cord. Dr. L. B. Andreas experimented a long time with the hydrobromate of hyoscamia in the treatment of the insane, and Dr. Lawson used the sulphate of the alkaloid to control violent paroxysms of acute mania, but it was found that to effect *this purpose* large doses were necessary, say one grain doses, so as to avoid or bridge over the cerebral excitement which continuous small doses were found to occasion. In palsy agitans it has been thought to lessen tremors, and in locomotor ataxy the spasms. The dose of the alkaloid is from the $\frac{1}{20}$ to the $\frac{1}{5}$ of a grain to commence with, and where the intention is to continue its use for any great length of time, the custom has been to administer it in rather larger than the above stated doses *twice* a day until the physiological action of the

drug shall have been observed—chiefly the dryness of the fauces and full dilatation of the pupils. Dr. Farquharson thought hyoscamus was like belladonna, but that it possesses rather more narcotic power, and on that account is better adapted to control the delirium of acute maniacs, “giving rise to a subdued form of mania, accompanied by an almost complete paralysis of the voluntary muscles, ending in quiet and refreshing sleep.” Dr. Ringer cites one case of acute mania, where one grain of hyoscamia induced undisturbed sleep and it has been claimed that good is not obtainable from the drug until it has been given in full grain doses. Certainly no such dose was resorted to in the case we are about to illustrate. The chief trouble in the treatment of acute mania is to see the case in the onset, for newly insane patients can in very many cases be relieved if actively treated at once, but physicians in asylums rarely have this opportunity as many patients have become hopelessly insane before their friends, through mistaken kindness, seek for them the benefits of such institutions, and often months and years have elapsed since the first outbreak. Indeed it is claimed that taking all cases into this calculation, good and bad, as high as *eighty* per cent. could be cured if attended to in time; but that after the disease has become chronic it is a great feat to cure *ten* per cent. of them. The power exerted by this alkaloid in lessening cerebral excitement is antagonistic to that of opium, which it appears was mixed by Helen with the wine of Menelaus in order to increase the hilarity of that monarch.

In gelsemin we find a paralyzing influence over the circular fibres of the iris, yielding in dilatation, it appearing to have no action over sensibility nor like hyoscamia of lessening the irritability of the muscles or of the motor nerves, its especial direction being to benumb the dental branch of the 5th pair in facial neu-

ralgia or tic dououreux. We find an analogy between this gelsemin and aconitum in affording relief in neuralgia of this same nervous branch, but great care must be exercised in the use of this last named remedy as it is perhaps the most powerful of all the alkaloids, being prescribed in granules of from $\frac{1}{500}$ to the $\frac{1}{60}$ of a grain. Accurate granules of these strengths are manufactured by Messrs. Schieffelin & Co., and Messrs. McKesson & Robbins, both of New York.

Case.—Mrs. _____ aged 44 years, had trouble first in January, 1880, her ankle failing her and the foot of that side becoming turned out, so that she consulted a surgeon of experience who advised her to wear an iron support for the weak foot. This she did for a considerable time, until finding no improvement she left off its use. About this time she suddenly fell, as if paralysed, losing the power of the right side, but was conscious of no pain at the time.

The trouble came on insidiously, the right foot at the instep losing its power; turning out and under. Next year she found in May that she had lost rotary motion in the right hand while attempting to stir a fluid. During the next two years she felt as if the arms and hands were tied down while there was a sense of dragging of the foot of same side. This was *always* accompanied by a buzzing in the back just below the first dorsal vertebra. The lady is of a full, sanguine temperament and always a fair feeder. She tried electricity for three years under the advice of her physician. Any protracted effort threw her into terrible spinal pain at the above named spot, as if something were drawing her down. She also feels as if the lower portion of the throat is being tightly grasped by a strong hand. Last fall (1884) she experienced a sense of pitching forward and of running; she would seize hold of any support, completely exhausted for the time. Every effort was attended by great

nausea, every emotion, as surprise, worry or even laughing would cause nausea, which lasted from one hour to the entire day. She rarely experiences this nausea now, though it does come and go at times. She began to tremble from the first; having so called nervous chills. The patient has great *will power* and has throughout done all she could to fight the distressing feelings to which she has been subjected. She consulted Dr. Wm. A. Hammond in New York City, in March, 1885. He called her disease "*Diffused cerebro-spinal sclerosis*" and put her on a solution of hyosciamia, 1 grain to the ounce, ordering her to begin with 4 drops three times the first two days and to increase the dose every day *one drop* until she shall have taken eight drops three times a day, then to take eight drops three times a day for two days, increasing each second day until she shall have reached 20 drops, then to stop ten days and begin again on four drops, thus beginning 4 drops, or the $\frac{1}{120}$ of a grain, then up to $\frac{1}{60}$ of a grain until 20 drops, or $\frac{1}{24}$ of a grain when she would leave it off for ten days. The lady thus relates her feelings as she experienced the effects of the increasing doses of the alkaloid. "At first it almost makes you feel breathless, the breath coming apparently from the upper half of the chest only." This is not constant. Twenty minutes after taking the larger dose she feels so strange as to fancy she is intoxicated, and then she has a dry husky choking in the throat. This she finds to come on when taking the 12 drop doses and to continue until she ceases to take it. The intoxication continues for one to two hours, the pupils becoming dilated, while the mind continues very clear. Vision during this state is so impaired that a needle appears to have two eyes instead of one. Without the medicine she can see readily to thread a fine needle. She sleeps well. The hyosciamia causes a sleepy feeling to steal over her about 8:30 P. M. She never sleeps during the

day. The medicine in doses of 12 drops causes a feeling of dropping of the back portion of the throat as in post nasal catarrh, causing repeated efforts to clear the throat. The vision is obscured for near objects but not for remote ones. Though the medicine causes deep sleep, it does not make her logy all the next day like morphine. She is sleepy only from 8 P. M., to 8 A. M., next day. While under the influence of the drug she finds that the least exertion causes the blood to shoot through the vessels, running like liquid fire down the back. The intoxicating effect of the dose wears off before the time for the next dose, but begins again twenty minutes after repeating it. She takes it always just before meals. Some days she is able to dress; at others she requires assistance. Some days she can get about unassisted and even go down stairs. She cannot read while under the influence of the medicine, because of perverted vision. She never breaks a cup, but can direct coffee and food to her mouth with tolerable ease. She never misses her mouth nor looks down at her feet, nor does she see two objects at the same time. She has at times lost her balance, feeling as if she were about to fall backwards. She can ascend and descend steps readily, and could walk half a mile if necessary, by great effort. She soon exhausts her strength, mainly from her efforts to coördinate her limbs. She cleans her own room, which is full of bric-a-brac, which she takes down and dusts as needed, only she cannot *sweep* the room. Her grip is good and she craves society. On reaching the 17th drop of her medicine the post nasal dropping increases, but she does not then run nor pitch forward as before, nor does she tremble near so much as when without it. When she first reached the 19 drop dose she stopped the hyoscamia and two days after had severe cholera morbus, lasting one day of vomiting and two days of vomiting and purging.

ing together. She was given $\frac{1}{4}$ grain of morphia in half an ounce of whiskey every two hours for two days, the physician thinking she had been taking atropia, neither he nor she knowing she had been taking hyoscamine, and he supposing atropia had caused the distorted vision and produced the cholera morbus. The morphine did not produce sleep, nose itching nor any other decided opium effects. She was then given 3j doses of bromide of sodium which caused the skin of face, neck, shoulders and arms to break out in large acneoid pimples, causing pain as well as unsightliness. At this juncture the lady fell to my care, her physician leaving the city. Finding she was still dazed from the morphia and bromide and possibly from the combined effects of the morphia, bromide and the hyoscamine, I gave her the fluid extract of coffee at first, with the comp. syrup. of the hypophosphites, hoping by this last to assist in building up her strength worn down by the vomiting and purging. This she continued until she regained her strength and appetite. As soon as her mind became clear I ordered Fowler's solution and the calcium sulphide pills $\frac{1}{2}$ grain. In a week she recommenced the hyoscamine ordered by Dr. Hammond. This gentleman had also advised one dozen dry cups over the cervical spine once a week, which I carried out faithfully myself for months. At first she fancied she derived good from the cupping, the theory being to cause alternate dilatation and contraction of the arterioles of the cord, so as to invite the flow to the hardening medulla at the supposed region of sclerosis. Failing to experience any further benefit from these repeated cuppings she concluded to give them up. While taking the drug at anything like *high dose* she has an ashy taste. Strange to relate this taste comes on just as she finishes her meal, if she has taken the medicine within half an hour of eating. This taste begins to wear off as the hour approaches for another

dose. After stopping the drops for a while she still has this taste and feels terribly depressed. The pupil remains widely and steadily dilated during the whole time of its taking, to such a degree even as to prevent her using her eyes at all. When she is *well under* the influence of the medicine the tremors lessen *very much*, though she can discover them. She feels that the hyosciamia adds to her will power of keeping the limbs fairly steady. She begins now to walk much better; indeed, the longer in reason she walks the more steadily she gets along, but not so with the arms, which soon tire and the choking comes on with gradual loss of will power, to be relieved by assuming the recumbent position for a few moments, *after which* she can resume her occupation or start to walk again.

After getting as fully as she dares under the action of the hyosciamia (that is, when she has reached the dose of 19 drops three times a day) she feels forced to stop and let its influence die down. It is during this fading away of the drug influence that she finds the greatest depression of spirits. She holds off for four or five days and is glad to begin it again. She did not take any for two and one half months and during that time she ran down fearfully, losing strength but retaining her appetite.

At this writing she is taking 9 drops, having found from experience that she cannot well stand larger doses. The medicine does not affect her as disagreeably now as formerly. What she does more particularly notice and rejoice in is that she does not now have the feeling as if the throat was being grasped.

The patient cannot direct her mind for any length of time to reading, writing or drawing, without finding her hands and arms to tremble, and feeling the same buzzing in the back part of the neck. This comes on as soon as she gives her attention to any employment. It has much abated of late, enabling her strong will power to restrain the tremors and to avoid the pitching walk which has been causing her so much annoyance. She is altogether better but feels that she may have at any time to resort again to the hyosciamia. There can be no doubt in the mind of the writer that the drug has benefitted her. It is the only *one medicine* which was persisted in; the others given were only such as were required to meet occasional indications as before stated. With the remedy the symptoms improve but this amelioration of her feelings requires frequent repetition of the drug. During the whole of the course only the solution was used. In the case we have been studying there was no occasion for any course but perfect candor, but there *may* and often do arise cases, especially when patients, who are in acute mania or in suspicious forms of insanity, watch and resist every effort to administer medicines to them and our advantage here is that from the smallness of the dose and the want of unpleasant taste it may be given with the food without the knowledge of the patient, who otherwise rebels in every effort to help him. Where much *cerebral* excitement already exists or where there is *dread* of it, the hyosciamia may to great advantage be substituted for opium, chloral and for the bromides.

